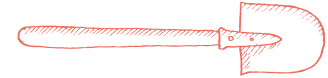


Composting in Childcare Production Gardens

Local Foods: Childcare Center Production Gardens

7

This publication is a how-to guide for starting a garden-related standard compost bin in a childcare center Outdoor Learning Environment (OLE). Included is guidance on design, construction, and management of compost bins as well as curriculum connections. This is the seventh of eight publications about childcare center production gardens.



Composting is an easy, natural way to recycle and absolutely fascinates children as they begin to understand nature as a process of transformation. Compost can be made from most organic materials, such as leaves, kitchen scraps, and Outdoor Learning Environment (OLE) trimmings. The finished compost can be used as a soil amendment, mulch, or both, to improve the health of soil and therefore of plants.

Compostable organic materials are commonly referred to as “browns” and “greens.” Browns are sugar-rich carbon sources that provide energy to microorganisms, absorb excess moisture, and provide structure to the compost. Greens are protein-rich nitrogen sources that provide energy and moisture to microorganisms (Figure 1).

NITROGEN (GREEN)

- Grass clippings
- Vegetable scraps
- Fruits
- Coffee grounds and filters
- Tea bags and tea leaves
- Rinsed eggshells
- Old herbs, spices
- Flowers, dead blossoms
- Freezer-burned vegetables, fruits
- Aquarium water, algae, plants

CARBON (BROWN)

- Leaves, twigs, yard trimmings
- Yarn, thread, string, rope
- Paper rolls (towel, toilet, gift wrap)
- Straw, hay, corn cobs
- Newspaper, non-glossy paper
- Pizza and cereal boxes, paper egg cartons
- Grains, cereal, crackers
- Paper bags, baking cups
- Sawdust, wood bark and chips
- Bamboo skewers, toothpicks

Figure 1. Appropriate “greens” and “browns” for making compost.



Adding “greens” to a compost bin.

INAPPROPRIATE ITEMS

These organic materials should *not* go into the compost:

- Dog or cat feces and litter
- Dirty diapers
- Used facial or toilet tissue
- Animal matter (meat, fish, bones, fats, grease, lard, oils, eggs, butter, milk, yogurt, and sour cream)
- Yard trimmings treated with chemical pesticides
- Diseased or insect-infested plants
- Black walnut tree leaves or twigs
- Weeds that have gone to seed or have invasive roots
- Charcoal ash, coal, and wood ash
- Pressure-treated lumber, pressed wood, and plywood
- Magazines, catalogs, wrapping paper, greeting cards with metallic inks, and photographs



Manufactured tumbler with easy access provides a practical composting option for childcare center production gardens.

COMPOST BINTYPES

Composting units can be purchased as manufactured items or they can be constructed from scratch. Manufactured units are available as “tumblers” or “bins” of various types, prices, pros, and cons. Substantial information is available online to help make a decision.¹ Visit the North Carolina Cooperative Extension composting web page to learn about types of compost bins that can be constructed.² An uncontained “compost pile” is not recommended for childcare centers as it is challenging to manage and may be disallowed by sanitation or licensing rules.

LOCATION

Place the compost unit in a convenient location more than six feet from buildings or wooden structures, in a flat, open space protected from floods or runoff to surface waters or wells. To help the unit retain moisture, choose a shaded area within reach of a garden hose.

MAKING COMPOST

A simple compost recipe combines leaves, grass, food scraps, and coffee grounds at a 2-to-1 ratio of browns and greens. To help make the compost hot, dust small amounts of one or more of the following (in meal form) on top of the greens: alfalfa, bone, hoof, blood, soybean, canola, or cottonseed. Alternatively, add a mixture of water and molasses, sugar, syrups, or flat soft drinks to help activate your compost.

Chop materials into small pieces so they will decompose faster. Run a lawn mower over leaves before or after raking. Add some small twigs, branches, or other rigid materials to provide structure and ventilation to the compost.

If using a compost bin, alternate brown and green layers, making the brown layers twice as thick as the green ones. Thoroughly water each layer to ensure even moisture distribution. Toss in a handful of soil on each layer to introduce more microorganisms. Top the whole pile with five inches of browns to prevent flies and other pests and provide a filter for odors.



Chopped food waste makes great compost.



Multi-compartment, enclosed compost bins in a childcare center OLE.

The decomposition process will slow down if there is too little or too much moisture. About 50% moisture is needed; this means the compost should feel like a wrung-out sponge. If the compost gets too wet, add dry leaves, shredded paper, or sawdust.

Compost needs ventilation. To aerate a compost bin, turn the material with a digging fork, if possible. If this is too difficult, poke the compost layers with a broom handle to help air flow. Aerating once a week will hasten the composting process.

If the bin is left alone, it takes one or two years to create compost. Compost can be ready in several months if aerated weekly. The compost volume will shrink 20% to 70% depending on the types of organic materials it contains. NC Cooperative Extension provides additional resources about composting.³

When ready for use, coarse, undecomposed materials can be separated from finished compost using a simple screen made with half-inch mesh hardware cloth and a wooden frame. Place the screen on top of a wheelbarrow or inclined at an angle on the ground. Load the screen with compost and use your gloved hand or a square-end shovel to scrape the compost against the screen. Remove the screen to reveal sifted compost. Materials too large to pass through the screen may be added back into the compost bin.

USING COMPOST

Compost can be used with potted plants, childcare center gardens, lawns, shrubs, and trees. In clay soils, compost improves aeration and drainage and makes soil easier to work with hand tools. In sandy soils, compost increases water-holding capacity and increases soil aggregation. Compost encourages healthy root systems and may help to suppress some plant diseases and pests.

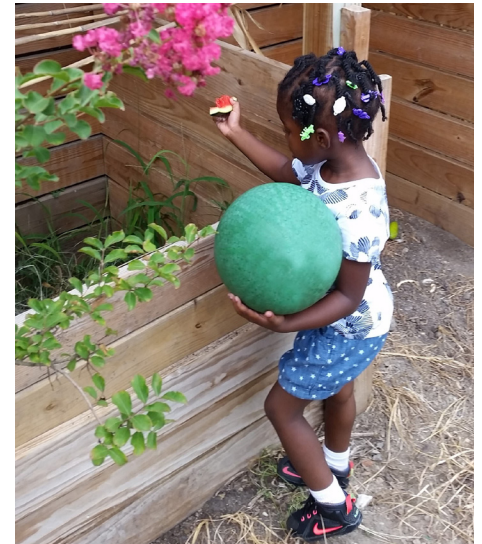
COMPOSTING ACTIVITIES

After several weeks, organic material can be taken from the bottom of the compost bin to observe macro-organisms, such as earthworms, mites, springtails, ants, centipedes, beetles, and millipedes.⁴ Centipedes should not be handled because they may bite and inject venom that can be a problem for people with insect allergies.

In addition to being engaged in making compost, children can explore the biological process of decomposition. Billions of microorganisms and a lesser number of visible creatures do the work of composting,⁵ which children can observe, describe, and try to identify. Preschoolers can take a sample from the compost bin with the teacher and use a microscope to see bacteria, fungi, and nematodes.



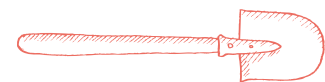
Finished compost ready to add to planting beds.



Child learning conservation habits by adding watermelon rind to compost bin.



Metal mesh sides provide good ventilation for the compost.



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